

Application No.: 09/892,543
Amendment Dated: September 30, 2003
Reply to Office Action of: May 2, 2003

REMARKS

Applicants respectfully request reconsideration of the application, as amended, in view of the following remarks.

The present invention as set forth in **Claim 1** relates to a method for producing an ethylene-vinyl acetate copolymer, comprising:

copolymerizing ethylene and vinyl acetate in an alcohol-based solvent, so as to form a solution containing said ethylene-vinyl acetate copolymer; and

recovering unreacted vinyl acetate from said solution after copolymerizing;
wherein said solution is introduced into a recovery column through an upper portion thereof, **a vapor of an alcohol-based solvent is introduced into said recovery column** through a lower portion thereof, a solution comprising ethylene-vinyl acetate copolymer is taken out of said recovery column through a lower portion thereof, and unreacted vinyl acetate in the solution is taken out of said recovery column with the vapor of the alcohol-based solvent through an upper portion thereof;

wherein said alcohol-based solvent is deoxidized in advance and an oxygen concentration in said alcohol-based solvent is not more than 60 ppm when said alcohol-based solvent is used in recovering said unreacted vinyl acetate.

In contrast, Blumberg et al (US 3,513,142) fail to disclose or suggest **that an oxygen concentration in said alcohol-based solvent is not more than 60 ppm when said alcohol-based solvent is used in recovering said unreacted vinyl acetate**. In Blumberg et al, the oxygen content of a monomer stream fed to the polymerization zone is removed (Blumberg et al, col. 2, line 60-col. 3, line 17). However, there is no disclosure of an oxygen content of a

Application No.: 09/892,543

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solvent used in the recovery of the monomer after the polymerization. The disclosure of Blumberg et al is based on the fact that the patentees discovered that acetaldehyde and similar impurities are not the sole reason for the for the **undesired coloration** of polyvinyl alcohols. They found that molecular oxygen present during the polymerization is responsible for the coloration (Blumberg et al, col. 2, lines 3-6, 35-41 and col. 4, lines 5-17). However, the inventors of the present invention have found that the oxygen contained in the alcohol-based solvent used **when recovering vinyl acetate after the polymerization** contributes to the **visible imperfections such as discoloration, fish eyes, rough surfaces** (specification, page 1, lines 9-15 and 30-32). Blumberg et al fail to disclose an oxygen content in methanol used in the recovery process and the influence of the oxygen contents on the color of the EVOH product. All they state is that the amount of coloration found in the polyvinyl alcohol will depend in large part upon the extend to which the dissolved oxygen is **removed from the feeds to the polymerizer** (Blumberg et al, col. 4, lines 43-46).

The methanol used in the recovery process has no direct relationship with the production of the PVAc-based polymer. As claimed in Claim 1, a solution containing said ethylene-vinyl acetate copolymer is introduced into a recovery column and **a vapor of an alcohol-based solvent is introduced into said recovery column**. The fact that a material having no direct relationship with the polymerization affects on the physical properties (e.g., appearance) of the product has not been found until the present invention, and thus it is not obvious for any persons skilled in the art from the cited references.

Since vinyl acetate and methanol are deoxygenated before polymerization according to Blumberg et al, a person skilled in the art will not consider the effects of the oxygen

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content in methanol used in the recovery process on the oxygen contents in the vinyl acetate and methanol to be recovered and reused for polymerization.

Therefore, the rejection of Claims 1-15 under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Blumberg et al (US 3,513,142) and the rejection of Claims 16-18 under 35 U.S.C. §103(a) as being unpatentable over Blumberg et al (US 3,513,142) are believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of these rejections is respectfully requested.

With regard to withdrawn Claim 19, Applicants note that Claim 19 depends on Claim 4. Thus, if Claim 4 is allowable, Claim 19 should be allowable as well.

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Applicants submit that the present application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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